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DERMAPTEROLOGICAL NOTES.

BY MORGAN HEBARD.

In the many large exotic collections at hand, but very few specimens of Dermaptera are to be found. In no case are the forms of the order sufficiently represented to give anything but a fragmentary faunistic knowledge, excepting in the West Indian, Mexican, Costa Rican and Panamanian series, which are being reported on separately. The study of these important series has offered an opportunity to determine the one hundred and four specimens discussed below. In several instances features of decided interest are encountered, the types of several old species are discussed, while among the thirty-one species recorded, one new genus and six new species are found.

Our hearty thanks are accorded to Dr. F. E. Lutz, of the American Museum of Natural History, Dr. Samuel Henshaw, of the Museum of Comparative Zoology and Prof. Lawrence Bruner, of the University of Nebraska, not only for the loan of undetermined material, but of historic specimens and types as well, enabling us to work out a number of vexing problems. Mr. A. N. Caudell, of the United States National Museum, has also helped us greatly, but the rule of his institution, preventing the loan of types, has obliged us to omit the consideration of certain species which bear on our work, the status and relationship of which is not at present clearly understood.

PYGIDICRANIDÆ.

PYRAGRINÆ.

Pyragra fuscata Serville.

1831. *Pyragra fuscata* Serville, Ann. Sci. Nat., XXII, p. 34. [Cayenne.]
Chanchamayo, Peru, 1 ♀, [A. N. S. P.].

Pyragropsis brunnea (Burr).

1909. *Pyragra brunnea* Burr, Ann. Mag. Nat. Hist., (8), III, p. 254. [Fon-teboa, Brazil (*nec* Peru); Iguapo, Peru.]

Kangaruma, British Guiana, VII, 13, 1911, (F. E. Lutz; in forest trail),
1 ♂, [A. M. N. H.].
Kaiteur, British Guiana, VIII, 12, 1911, (F. E. Lutz; taken by sifting),
1 ♀, [A. M. N. H.].

The male is in every way typical. The female is larger; length of body, 13.2, of forceps 2.9 mm. This female has the head, pronotum, tegmina and exposed portion of wings lustreless blackish brown;

this, under the microscope, found to be due to a thin but solid coating of some foreign matter.

LABIDURIDÆ.

PSALINÆ.

***Psalis festiva* Burr.**

1910. *Psalis festiva* Burr, Trans. Ent. Soc. London, 1910, p. 182. [Bahia, Brazil.]

Cariaquito, Venezuela, I, 1911, (S. Brown), 2 ♀, [A. N. S. P.].

We are by no means convinced that this insect is merely a small, non-melanistic, wingless form of *P. gagathina*, as indicated by Burr.¹ The truncate tegmina alone are visible in these specimens. Length of body 15.8 and 17.5, of forceps 3.4 and 4 mm.

The head is mahogany red, the pronotum burnt sienna. The tegmina are mars yellow, except narrowly on the caudal margin and more broadly on the cephalic margin, where they are blackish brown, like the abdomen and forceps. The limbs are clear mars yellow.

***Spandex percheron* (Guerin and Percheron).**

1838. *Forficula percheron* Guérin and Percheron, Gen. Ins., Orth., Pl. VII. [French Guiana.]

San Carlos, Costa Rica, 1 ♂, type of *Psalis pulchra* Rehn, [U. S. N. M.].

Trinidad, (H. D. Chipman), 2 ♀, types of *Labia pictipennis* Bruner, [Bruner Cln.].

Caparo, Trinidad, VI and VIII, 1913, (S. M. Klages), 1 ♂, 1 ♀, [A. N. S. P. and Hebard Cln.].

Kaiteur, British Guiana, VIII, 11, 1911, (Crampton), 1 ♀, [A. M. N. H.].

Rio Caiary-Uaupes, Amazonas, Brazil, XI, 1906, (H. Schmidt), 1 ♂, [A. M. N. H.].

The original figure of this distinctive species is excellent, and we do not understand why Burr, after placing *pulchra* (with a query) and *pictipennis* in the synonymy under *percheron* in the *Genera Insectorum*, has more recently mentioned and also designated *pulchra* as genotype of *Spandex*.²

These specimens show little variation except in pronotal coloration. The pronotum varies from solid Sanford's brown, to almost solid blackish bay, two examples showing an intermediate and maculate condition.

The Brazilian specimen differs from all others before us in having the femora heavily and very broadly annulate with blackish brown.

The male penultimate ventral abdominal segment is remarkable

¹ Ann. k.-k. Naturhist. Hofmus. Wien, XXVI, p. 334, (1912). Burr also included there *pulchra* of Rehn, actually an absolute synonym of *Spandex percheron* (Guerin and Percheron).

² Jour. Royal Microsc. Soc., 1915, p. 537, (1915).

in having the distal margin narrowly and very weakly emarginate mesad, slightly thickened at each extremity of this emargination and with a minute, elongate-conical styliform process situated in each, directed caudad. From the original description of Burr's *Psalis rosenbergi*, it would appear probable that this condition is also found in that species and that it is likewise a member of the genus *Spandex*.

Minute tubercles are found along the caudal margins of the fifth to ninth dorsal abdominal segments, particularly in females, these tubercles strongest laterad, from each of which springs a very elongate hair.

***Metalabis saramaccensis* (Zacher).**

1911. *Eu[labis] saramaccensis* Zacher, Zool. Jahrb., Abth. Syst., XXX, p. 378. [Sanboden, Saramacca District, and Paramaribo, Dutch Guiana.].
 Paramaribo, Dutch Guiana, VIII, 26, 1911, (F. E. Lutz), 1 small juv., [A. M. N. H.].
 Tukeit, British Guiana, VII, 21, 1911, (F. E. Lutz; under boat), 1 small juv., [A. M. N. H.].
 Kaiteur, British Guiana, VIII, 11 and 12, 1911, (F. E. Lutz), 1 ♂, 2 ♀, 1 large juv. ♂, 1 small juv., [A. M. N. H.].
 Ireng River to Roraima, Brazil, VIII, 6, 1911, (Crampton), 1 ♀, [A. M. N. H.].

The brief, longitudinal, rounded, dorso-lateral keels of the disto-dorsal abdominal segment readily distinguish males of this insect from the numerous other generally similar species of the *Psalides*.

The present series averages smaller than the type series as measured by Zacher ("Long. tot. 19-22 mm."), but no other features to warrant specific separation appear to exist. Length of body, ♂, 12.; ♀ 11.5 to 12.; of forceps, ♂, 2.6; ♀, 2.3 to 2.4 mm.

***Euborellia scudderi* (Bormans).**

1900. *Ps[alis] scudderi* Bormans, Ann. Mus. Civ. Stor. Nat. Genova, (2), XX, p. 449. [Puerto 14 de Mayo, Upper Paraguay [now in Bolivian Chaco]; Olivenza, Amazon River [Brazil].]
 Chanchamayo, Peru, 3 ♂, [A. N. S. P.].

We are not certain that these specimens represent *scudderi*, as none of them have the wings showing. They are unquestionably conspecific with the material from Pará, Brazil, recently recorded, with a question, as *scudderi* by Rehn.³

There is little doubt but that *scudderi* Bormans and *Psalis burri* Borelli are referable to *Euborellia*, these species being, in fact, closely related to *Euborellia janeirensis*. The present specimens, when compared with males of *janeirensis* before us, are found to differ only in the slightly heavier build, complete and rectangular tegmina and

³1916. *Trans. Am. Ent. Soc.*, XLII, p. 218.

slightly heavier punctulation and lateral carinæ of the dorsal abdominal segments.

Euborellia ambigua (Borelli).

1906. *Anisolabis ambigua* Borelli, Boll. Mus. Zool. Anat. comp. Univ. Torino, XXI, No. 531, p. 3. [Jesus Maria River, Costa Rica.]

Port of Spain, Trinidad, III, 4, 1910, (Crampton & Lutz), 1 ♂, [A. N. S. P.].

This species is closely related to *Euborellia janeirensis*. The antennæ are not annulate.

Euborellia annulipes (H. Lucas).

1847. *Forficesila annulipes* Lucas, Ann. Soc. Ent. France, (2), V, p. LXXXIV. ["Jardin des Plantes, Paris"; probably introduced.]

Tomb of Maximus, Rome, Italy, VII, 24, 1908, (M. Hebard; under stone on Campagna), 1 juv., [Hebard Cln.].

LABIDURINÆ.

Labidura xanthopus (Stål).

1855. *Forficesila xanthopus* Stål, Oefv. Vet.-Akad. Förh., XII, p. 348.

Carcaraña, Argentina, (L. Bruner), 1 ♂, 1 ♀, [A. N. M. H.].

Labidura riparia (Pallas).

1773. *Forficula riparia* Pallas, Reise, Russ. Reichs, pt. II, p. 727. [Shores of Irtysch River, western Siberia.]

Biskra, Algeria, 1889, (Desbrothers), 1 ♂, [Hebard Cln.].

Tamatave, Madagascar, 1 ♀, [Hebard Cln.].

The specimen from Biskra is rather pale, with wings scarcely showing beyond the tegmina and with the two, latero-median projections of the disto-dorsal abdominal segment distinct. The specimen from Tamatave is rather dark, with wings projecting one millimeter.

Forcipula despinosa new species. Pl. XVI, fig. 1.

This is the only species of the genus which has the sides of the abdomen smooth. This character would assign the species to *Labidura* in the existing keys, but there is no question that *Forcipula* is the genus to which the species properly belongs, and it is, indeed, not widely separated from other Indian species, as might be inferred from that single feature.

In the body pubescence the species agrees with *F. trispinosa* and *F. pugnax*, but shows closer similarity to *F. quadrispinosa* in the shape of the forceps. It is very distinctive in entirely lacking projections of the dorsal abdominal segments and in the microscopically pitted surface of the metazona, tegmina and wings.

Type: ♂; Northern India. [Hebard Collection, Type No. 437.]

Size slightly smaller, form similar to that of *quadrispinosa*. Head, pronotum, tegmina, exposed surface of wings and dorsal surface of

abdomen, except ultimate segment, very finely pubescent, each minute hair springing from a minute pit, these smaller on head and prozona.⁴ Head otherwise similar to that of *quadrispinosa*. Antennæ with first and third joints subequal in length, fourth joint about half again as long as broad.⁵ Tegmina and wings fully developed, broadly rounding laterad, not showing a feeble percurrent keel as in *quadrispinosa*. Dorsal surface of abdomen without projections, but with segments, to the penultimate, milled at their caudal margins; ultimate segment narrower than in *quadrispinosa*, width not two and one-half times length,⁶ with a decided medio-longitudinal sulcus and with surface showing microscopic, irregular, impressed lines, which are strongest meso-distad. Pygidium declivent, large, fitting tightly between forceps, roughly rhomboidal, with distal portion curving inward and margin there broadly convex, surface convex distad, showing two minute, blunted projections. Forceps elongate, internal margin broadly concave in slightly more than proximal half, with minute widely spaced teeth, thence straight, with more numerous, slightly larger serrations to the distal third of this portion where it is concave and smooth to the apex: shaft in proximal fourth heavy, triquetrous, tapering, with dorsal margin smooth, thence slender, nearly cylindrical to slightly beyond middle point, where it is slightly enlarged and more flattened horizontally, tapering distad to the acute apex. Ventral surface of abdomen strongly pubescent, distal margin of penultimate segment subtriangularly convex. Limbs rather long, slender; caudal metatarsus hairy, in length equalling that of the third tarsal joint, with a heavy fringe of hairs along the external margin; tarsal claws elongate and slender.

Length of body, 16.2; of pronotum, 2.4; of tegmen, 4.9; of forceps 8.; width of pronotum, 2.3; of ultimate dorsal abdominal segment, 3.2 mm.

Head, pronotum, tegmina, exposed portion of wings and abdomen chestnut brown, slightly darker on face, shading to claret brown on

⁴ In *quadrispinosa* the head is much more weakly pubescent, the prozona almost smooth and hairless, the tegmina and exposed surface of wings more polished, finely granulose and hairless, and the metazona and dorsal surface of the abdomen, except the ultimate segment, is more thickly and minutely granulose, with hardly any hairs.

⁵ In *quadrispinosa* the first joint is longer than the combined length of the second and third, the fourth joint as broad as long.

⁶ Burr's figures show, in his *Fauna British India, Dermapt.*, that he meant rectangular, when he characterized this segment as square, for the species of *Forcipula*.

polished ultimate dorsal abdominal segment, forceps claret brown. Palpi and limbs cinnamon-buff.

The type is unique.

Forcipula quadrispinosa (Dohrn).

1863. *L[abidura] quadrispinosa* Dohrn, Stett. Ent. Zeit., XXIV, p. 311.
[Tranquebar, India; Ceylon.]

Phuc-Son, Annam, XI and XII, (for H. Fruhstorfer), 1 ♂, [Hebard Cln.].

This specimen fully agrees with Burr's more adequate diagnosis of the species.⁷

PARISOLABINÆ.

Pseudisolabis elegans new species. Pl. XVI, figs. 2, 3.

The present species is related to *P. burri* and *P. tenera*, easily separable in the male by the much more elongate and evenly curved forceps. It agrees more nearly with *tenera* in form, coloration and antennal joints, but with *burri* in the form and contour of the ultimate dorsal abdominal segment and proportions of the tarsal joints.

Type: ♂; Kulu, Kangra, India. (M. M. Carleton.) [Museum of Comparative Zoology.]

Size rather small; form compact, greatest width mesad on abdomen. Dorsal surface shining, of head and pronotum smooth with hardly any hairs, of abdomen exceedingly finely pubescent, each minute, microscopic hair springing from a minute, microscopic pit, proximal segments with a few small bristles laterad. Head with sutures subobsolete, a few very feeble depressions indicated meso-caudad on the occiput. Antennæ with third joint elongate, distinctly longer than sixth, (in the majority of specimens longer than any other excepting the first. The fourth joint is normally wider than long, but varies to appreciably longer than wide.) Pronotum wider than long, rectangular, with angles sharply rounded; surface weakly convex with a feeble medio-longitudinal sulcus, which is obsolete caudad; concave narrowly laterad, the concavity feebly extending mesad at the juncture of the prozona and metazona, which are fused without further demarkation; lateral margins cingulate. Mesotum and metanotum very short. Dorsal abdominal segments simple, with straight caudal margins, which are not produced laterad and are broadly convex latero-ventrad; ultimate segment very short, fully four times as wide as long, slightly depressed and declivent distad in mesal section, with a feeble medio-longitudinal sulcus; caudal margin truncate, feebly rotundato-angulate produced above

⁷ *Fauna British India, Dermapt.*, p. 94, (1910).

the forceps. Pygidium declivent; subtrigonal, with apex rounded; moderately tumid. Forceps simple, elongate, gradually tapering and evenly curved to the aciculate apex, cylindrical except in median portion, where the inner surface is flattened. Penultimate ventral abdominal segment strongly transverse; caudal margin very broadly convex laterad, very feebly concave in broad mesal portion. Limbs short, femora stout. Caudal tibia (normally) with two minute, disto-ventral spines, caudal metatarsus hairy ventrad, with two rows of minute spines and a heavy internal fringe of hairs. Caudal metatarsus slightly longer than combined length of second and third tarsal joints, second joint more than half as long as third.

Allotype: ♀; same data as type. [Museum of Comparative Zoology.]

Agrees with male except in the following features: Disto-dorsal abdominal segment very much smaller, projections above forceps slightly broader. Forceps very short, triquetrous, tapering to the aciculate apex and very weakly curved inward distad; margins smooth, but internal margin feebly lamellate proximad. Penultimate ventral abdominal segment with distal margin broadly rounded, showing a feeble mesal emargination.

Measurements (in millimeters).

♂	Length of body.	Length of pronotum.	Width of pronotum.	Width of abdomen.	Length of forceps.
<i>Type</i>	9.2	1.7	2.2	2.8	3.
<i>Paratype</i>	8.3	1.6	1.9	2.4	2.8
♀					
<i>Allotype</i>	9.	1.8	2.3	2.9	1.8
<i>Paratype</i>	10.2	1.8	2.3	2.8	1.8
<i>Paratype</i>	10.	1.9	2.3	2.8	1.9

General color shining bay, deepest on head, forceps and distad on abdomen, tarsi paler.

Specimens Examined.—5; 2 males and 3 females.

Kulu, Kangra, India, (M. M. Carleton), 2♂, 3♀, *type*, *allotype*, *paratypes*, [M. C. Z., Hebard Cln. and A. N. S. P.].

LABIIDÆ.

SPONGIPHORINÆ.

***Spongiphora bogotensis* (Rehn).**

1905. *Opisthocosmia bogotensis* Rehn, Proc. U. S. Nat. Mus., XXIX, p. 511, fig. 8. [Bogotá, Colombia.]

1911. *Pilex bogotensis* Shelford, Proc. U. S. Nat. Mus., XXXVIII, p. 460. (New genus based on Rehn's type.)

Compared with material of the genotype, *S. croceipennis*, the unique type of the present species, now before us, is found beyond doubt

to be a member of the genus *Spongiphora*. The peculiar and distinctive character of the second tarsal joint in the present genus clearly led Rehn to refer the species incorrectly to the Forficulidæ, but Burr's erection of a new genus for *bogotensis* is unwarranted and would not have occurred had comparisons been made.

The species has the general facies, head, proximal antennal joint, tegmina, wings, tarsal joints and general character of proximal dorsal abdominal segments, pygidium and forceps as typical for *Spongiphora*. In this genus, the second tarsal joint is nearly as long as the third and both are enlarged; the second is, however, hardly broader than the third and, enlarging suddenly in the proximal portion, does not form the heart-shaped lobe characteristic of the Forficulidæ. The roughness of the abdominal surface in *bogotensis*, and particularly of the specialized ultimate dorsal segment, are striking features of specific value. The tarsal joints are thickly supplied with hairs ventrad, as in *croceipennis*, these hairs, however, being coarser in the present species.

Microvostox basalis (Burr).

1912. *Spongovostox basalis* Burr, Ann. k.-k. Naturhist. Hofmus. Wien, XXVI, p. 337, fig. 16. ["El Zumbador" = El Tumbador, San Marcos, Guatemala.]

Cacao, Trece Aguas, Alta Vera Paz, Guatemala, III, 27 to IV, 26, 1906, (Barber and Schwarz), 3 ♂, 2 ♀, ⁸ 5 juv., ⁹ [U. S. N. M.].

Burr's figure is excellent. Though the males of this species and of *M. bilineatus* (Scudder) are extremely different, the females are by no means easily separated. Those before us of *basalis* have the pygidium with disto-lateral projections smaller and very slender, the proximal dorso-internal brief shelf of the forceps as broad proximad as distad, the metazona entirely translucent¹⁰ and the longitudinal pale bands at the tegminal shoulders and proximo-external pale areas of the exposed portion of the wings yellowish. In females of *bilineatus* the disto-lateral projections of the pygidium are acute-angulate, but scarcely project caudad of the distal margin, the proximal dorso-internal brief shelf of the forceps narrows proximad, the pronotum is only slightly paler narrowly laterad on the metazona and the pale markings of the tegmina and wings are pale buffy.

⁸ Recorded, in 1907, by Caudell as *Spongophora pygmæa*, and a pair of the same series by Burr, in 1910, as *Spongophora ghilianii*.

⁹ Recorded by Caudell, in 1907, as *Sparatta flavipennula*.

¹⁰ This naturally more noticeable laterad.

LABIINÆ.

Labia barberi¹¹ new species. Pl. XVI, fig. 4.

1907. *Labia bilineata* Caudell, (not of Scudder, 1869), Proc. U. S. Nat. Mus., XXXIII, p. 173. [Cacao, Trece Aguas, Alta Vera Paz, Guatemala.]

1910. *Labia bilineata* Burr, (not of Scudder, 1869), Proc. U. S. Nat. Mus., XXXVIII, p. 453. (Same specimen.)

The marking of pronotum and organs of flight are similar to those found in *Microvostox bilineatus* (Scudder),¹² the male of which species was unknown at the time this specimen was recorded by Caudell and Burr.

The present species is an aberrant member of the Championi Group. It is distinctive in the remarkably large eyes and features of the male pygidium and forceps.

Type: ♂; Cacao, Trece Aguas, Alta Vera Paz, Guatemala. April 20, 1906. (Barber and Schwarz.) [U. S. National Museum.]

Size very small, form slender. Head smooth, shining, convex, but with occiput weakly bilobate, due to presence of a distinct medio-longitudinal suture caudad. Eyes large, fully twice as long as cheeks.¹³ Antennæ with first joint large, nearly as long as combined length of second and third joints; second joint minute; third elongate, expanding slightly only distad; fourth three-quarters as long as third; fifth slightly longer than fourth; succeeding joints increasing slightly in length distad, ovate, the longest slightly more than twice as long as broad. Pronotum with form as in *L. micans* Hebard, smooth, with a single bristle at each cephalic angle, length appreciably less than greatest (caudal) width; caudal margin feebly convex; median portion of surface weakly convex, triangular, with apex truncate at caudal margin of pronotum, remaining narrow lateral portions deplanate, feebly ascendent toward lateral margins. Tegmina and wings fully developed; smooth, shining, hairless. Abdomen polished, moderately well supplied with hairs laterad; disto-lateral portions of segments not produced, except of eighth, which is broadly rounded. Ultimate dorsal abdominal segment smooth; caudal margin transverse between forceps, feebly concave laterad. Pygidium twice as long as mesal width, weakly declivent, convex, with disto-lateral productions deplanate; lateral margins of proximal portion parallel, but each showing a brief convexity; distal portion bifurcate, forming two large, acute-angulate, slightly divergent projections, whose

¹¹ We take pleasure in naming this interesting species for its collector, our friend Mr. H. S. Barber, an enthusiastic collector and entomological student.

¹² See Hebard, *Trans. Am. Ent. Soc.*, XLIII, (1917).

¹³ The large eyes are remarkable in the genus *Labia*. A closer approach to the condition here found, is met with in species of the genus *Microvostox*.

margins show a very weak convexity. Forceps nearly straight, showing a weak and regular inward curvature in distal half; surface well supplied with hairs; shaft triquetrous in proximal half, with internal perpendicular face deplanate and ventro-internal margin feebly cingulate, bearing at its distal extremity a very minute but distinct tooth, for one-third the remaining distance the shaft is cylindrical, thence to the aciculate apex flattened cylindrical, with ventro-internal margin again feebly cingulate. Penultimate ventral abdominal segment with distal margin weakly convex laterad, feebly and broadly concave mesad. Caudal metatarsus equal to combined length of second and third tarsal joints.

Length of body, 3.67; of pronotum, .68; of tegmen, 1.29; of exposed portion of wing, .7; of forceps, 1.36; width of pronotum, .75 mm.

Head and abdomen shining blackish chestnut brown; median portion of pronotum, tegmina and wings slightly paler. Lateral portions of pronotum, shoulders of tegmina in an elongate maculation and exposed portion of wings proximo-laterad in a rounded maculation, warm buff. Forceps ochraceous-tawny. Limbs buffy; femora, in all but distal portion, suffused with chestnut brown.

The type is unique.

Labia curvicauda (Motschulsky).

1863. *Forficelisa curvicauda* Motschulsky, Bull. Soc. Nat. Moscou, XXXVI, p. 2, Pl. II, fig. 1. [Nura-Ellia Mountains, Ceylon.]

Trinidad, British West Indies, VI, 1905, (A. Buseck), 1 ♂,¹⁴ [U. S. N. M.].

Labia arcuata Scudder. Pl. XVI, fig. 6.

1876. *Labia arcuata* Scudder, Proc. Bost. Soc. Nat. Hist., XVIII, p. 257. [Vassouras, 100 miles north of Rio de Janeiro, Brazil.]

Cacao, Trece Aguas, Alta Vera Paz, Guatemala, III, 24 to IV, 20, 1906, (Barber and Schwarz), 4 ♂, 1 ♀,¹⁵ [U. S. N. M.].

Port Limon, Costa Rica, (F. Knab), 1 ♀, [U. S. N. M.].

Carillo, Costa Rica, (Schild and Burgdorf), 1 ♀,¹⁶ [U. S. N. M.].

Labia nodifer¹⁷ new species. Pl. XVI, fig. 5.

1907. *Labia arcuata* Caudell, (in part not of Scudder, 1876), Proc. U. S. Nat. Mus., XXXIII, p. 173. [Cacao, Trece Aguas, Alta Vera Paz, Guatemala.]

The present insect is very closely related to *Labia arcuata* Scudder,

¹⁴ Recorded in 1907 by Caudell as *Labia trinitatis*.

¹⁵ Correctly recorded in 1907 by Caudell, but the series of the following species there included under this name.

¹⁶ Recorded by Rehn in 1903 as *Labia annulata*, of which he considered *arcuata* a synonym.

¹⁷ In allusion to the knobbed tooth of the male forceps.

agreeing fully in general appearance and structure, except in the following characters. The large series before us, though showing frequent slight individual variations, contains no specimen showing a tendency toward *arcuata*.

A. ♂. Seventh, eighth and ninth dorsal abdominal segments rather sharply produced and distinctly keeled. Pygidium with lateral angles produced in minute, acute, conical projections. Forceps with inner tooth showing an enlarged and knob-like apex.¹⁸

♀. Pygidium with lateral angles produced in slender, almost aciculate projections, each nearly one-third as long as the distance between their bases.....*Labia nodifer* new species

AA. ♂. Eighth and ninth dorsal abdominal segments weakly produced and keeled. Pygidium with lateral angles produced in moderately stout, acute, conical projections. Forceps with inner tooth tapering to acute apex.

♀. Pygidium with lateral angles produced in minute, acute points, each scarcely longer than its proximal width.....*Labia arcuata* Scudder

In addition to the diagnostic characters given above, we would add the following to the description of the species.

Type: ♂; Cacao, Trece Aguas, Alta Vera Paz, Guatemala. April 26, 1906. (Barber and Schwarz.) [U. S. National Museum.]

Size minute, form moderately robust. Entire insect thickly covered with microscopic hairs. Head with vertex moderately convex, showing a very feeble medio-longitudinal suture. Eyes decidedly less than cheeks in length. Antennæ with first joint equalling combined length of second and third joints; second quadrate; third elongate; fourth about three-quarters as long as third; fifth nearly as long as third; succeeding joints elongate ovate, the longest over four times as long as broad. Tegmina and wings normal for group. Scent glands distinct, but not strongly developed. Pygidium perpendicular, broader than long; surface very feebly bilobate, with few subobsolete rugæ; lateral margins feebly and evenly convergent distad; caudal margin, between disto-lateral projections, feebly concave. Forceps strongly bowed, enclosing a mitre-shaped area, as broad as long when the arms touch at their apices; excavate in median internal portion, proximad with a decided longitudinal flange and just beyond its extremity is situated ventrad a decided tooth. Ventral surface of abdomen thickly covered with

¹⁸ The proximal ventro-internal flange of the forceps varies in intensity in both *nodifer* and *arcuata*, but shows an average more decided development in the latter species.

minute, short hairs. Penultimate ventral abdominal segment with distal margin broadly convex between the forceps. Caudal metatarsus elongate and slender, distinctly longer than combined length of second and third tarsal joints.

Allotype: ♀; same data as type, but taken March 29, 1906. [U. S. National Museum.]

Agrees with male except in the feature noted above and as follows: Pygidium subrectangulate, slightly broader than long, lateral margins very feebly and evenly convergent distad. Forceps widely separated;¹⁹ shaft slender, simple, cylindrical, tapering and weakly incurved in distal half to the acuminate apex.

Measurements (in millimeters).

♂	Length of body.	Length of pronotum.	Width of pronotum.	Length of tegmen.	Length of forceps.
Cordoba, Mexico.....	5.4	.82	.82	1.63	1.16
<i>Type</i> . Cacao.....	4.7	.8	.8	1.6	1.22
<i>Paratypes</i> . (7) Cacao..	3.8-5.2	.71-.77	.73-.78	1.44-1.3	1.09-1.16
♀					
Fortin, Mexico.....	5.	.88	.7	1.65	1.63
<i>Allotype</i> . Cacao.....	4.4	.75	.68	1.45	1.38
<i>Paratypes</i> . (11) Cacao 4.	-4.8	.75-.81	.7-.82	1.36-1.5	1.22-1.29

The series shows quite marked individual size variation. This is greatest in pronotal proportions and length of forceps.

Head dark brown, antennæ with proximal joints dark, one or two distal joints pale. Pronotum, tegmina and wings shining black, weakly metallic, showing a faint bluish lustre in some lights. Limbs dark brown, becoming slightly paler toward the apex of the femora and base of the tibiæ.²⁰

Specimens Examined: 22; 8 males, 13 females and 1 immature individual.

Fortin, Vera Cruz, Mexico, XI, 1887, (L. Bruner), 1 ♀, [Hebard Cln.].

Cordoba, Vera Cruz, Mex., III, 1908, (F. Knab; in bromeliads), 1 ♂, [U. S. N. M.].

Cacao, Trece Aguas, Alta Vera Paz, Guatemala, III, 29, and IV, 26, 1906, (Barber and Schwarz), 7 ♂, 12 ♀, *type*, *allotype*, *paratypes*, 1 juv., [U. S. N. M.].

¹⁹ See Pl. XVI, fig. 7.

²⁰ In some individuals the contrast is more decided than in others.

Prolabia modesta (Bruner).

1906. *Labia modesta* Bruner, Jour. N. Y. Ent. Soc., XIV, p. 137.²¹
[Trinidad.]

The unique female type of this species is now before us and is found to represent a species of the Unidentata Group of the genus *Prolabia*.

It shows very close relationship to the recently described *Prolabia dominicæ* Hebard, differing from females of that species in the decidedly larger size, exposed portion of wings with a large proximo-external yellowish buffy spot and ultimate dorsal abdominal segment with a few minute rugæ in the medio-distal depressed area, before the marginal row of minute rugæ, which row is broken mesad. The males will probably show much more decided differences between these species.

The measurements of this type are: length of body 7.5, of pronotum 1.2, of tegmen 2.1, of exposed portion of wing 1.4, of forceps 2.2; width of pronotum 1.15, greatest width of abdomen 1.8 mm.

Both *modesta* and *dominicæ* are distinctive in the females having no large, blunt, dorso-proximal projection on the internal face of the forceps.

Prolabia ascensionis new species. Pl. XVI, figs. 8, 9.

This small insect, which is shining reddish brown with a pale spot on the exposed portion of each wing, is of the characteristic color type of the Unidentata Group of the genus *Labia* and of numerous species of the *Spongiphorinae*.

The male pygidium is quadrate as in *P. arachidis*, but with distal portion differently sculptured and the forceps, though bidentate, much as is normal in that species, are less flattened. The insect is smaller and distinctly less robust than *arachidis* and does not have the befouled, greasy appearance of that insect.

Type: ♂; Ascension Island, South Atlantic. [Museum of Comparative Zoology.]

Size rather small; form moderately robust, but not nearly as robust as *arachidis*. Head much as in that species, sutures subobsolete. Antennæ (in series with eleven to thirteen joints), with third about equal in length to first, fourth slightly over half as long as third;

²¹ Professor Bruner has very kindly sent for examination the types of the species of Dermaptera described by him in this paper. The synonymy will be discussed under the species involved, in the series of dermapterological studies about to appear, the names being assignable as follows:

Labia modesta = *Prolabia modesta* (Bruner).

Labia pictipennis = *Spandex percheron* (Guerin and Percheron).

Labia insularis = *Vostox brunneipennis* (Serville).

Labia trinitatis = *Labia dorsalis* (Burmeister).

succeeding joints pyriform, the longest about three times as long as broad. Pronotum subquadrate; lateral margins cingulate and very feebly diverging caudad, caudal angles more broadly rounded than cephalic angles, caudal margin very weakly convex; prozona weakly convex, metazona subdeplanate, very weakly convex caudad. Tegmina fully developed, nearly twice as long as pronotum; wings fully developed, extending beyond tegmina distinctly more than pronotal length, costal margin rounding broadly distad to sutural margin. Dorsal abdominal segments with third showing very weakly developed stink glands, fourth with these glands slightly larger, eighth and ninth segments feebly produced dorso-laterad with margin there convex. Ultimate dorsal abdominal segment smooth, triangularly weakly concave meso-distad, not three times as broad as long, rectangular, with caudal margin truncate. Pygidium quadrate, feebly declivent; surface in minute proximo-mesal area triangularly feebly concave, thence feebly convex on each side, with surface showing minute, scattered projections; lateral margins almost parallel, with a few, minute median projections, very feebly convex to disto-lateral angles, which are terminated by a small point; thence the distal margin on each side is briefly very weakly oblique to small rounded knobs, between which the median portion, comprehending over half the distal margin, is feebly concave. Forceps much as in *arachidis*, cylindrical, moderately flattened horizontally, but not as much as in that species; shaft feebly convex, with ventro-internal margin feebly lamellate to just beyond pygidium, this lamella there terminating in a minute tooth, directed caudad, and with a similar tooth, but perpendicular to the shaft, slightly more than half the distance from the proximal tooth to the apex. Caudal metatarsus appreciably longer than combined length of second and third tarsal joints, ventral surface well supplied with hairs.

Allotype: ♀; same data as type. [Museum of Comparative Zoology.]

Agrees with type except in the following features. Pygidium much as in this sex of *arachidis*, very briefly and broadly triangularly deplanate proximad, thence with surface declivent and concave, produced ventrad between the forceps in a small, subquadrate projection, with disto-lateral angles produced in minute, conical projections and ventral surface very feebly convex and rugulose. Forceps straight to near apex, feebly triquetrous, enlarged at base, thus embracing the pygidium, thence tapering to the moderately incurved apices, with internal face and ventral margin supplied with a few blunt tubercles.

Measurements (in millimeters).

	Length of ♂ body.	Length of pronotum.	Width of pronotum.	Length of tegmen.	Exposed length of wing.	Length of forceps.
Type.....	6.6	1.2	1.25	2.	1.5	2.8
Paratype...	6.5	1.2	1.25	2.1	1.4	2.7
♀						
Allotype.....	6.1	1.1	1.2	2.1	1.3	1.9

General coloration (dried after immersion in alcohol) shining chestnut brown, with distal portion of abdomen and, in the type, the tegmina paler. Wings with exposed surface warm buff, with apex and sutural margin chestnut brown. Femora, except brief distal portion, chestnut brown. Tibiæ, tarsi and brief distal portion of femora paler, suffused warm buff.

Specimens Examined.—3; 2 males and 1 female.

Ascension Island, South Atlantic, 2♂, 1♀, *type, allotype, paratype*, [M. C. Z. and Hebard Cln.].

Prolabia arachidis (Yersin).

1860. *Forficula arachidis* Yersin, Ann. Soc. Ent. France, (3), VIII, p. 509, Pl. X, figs. 33 to 35. [[Adventive at] Marseilles, France.]
Kaiteur, British Guiana, VIII, 11, 1911, (F. E. Lutz; on open savannah), 1♂, [A. M. N. H.].

This specimen agrees fully with the North American series before us of this unpleasant domiciliary insect.

Sphingolabis hawaiiensis Bormans.

1882. *F[orficula] hawaiiensis* Bormans, Ann. Mus. Stor. Nat. Genova, XVIII, p. 341. [Different Hawaiian Islands.]
Sapit, Lombok, Lesser Sunda Islands, 2000 meters, IV, 1896, (for Fruhstorfer), 1♂, [Hebard Cln.].

The species has already been recorded from Lombok, by Bormans.

SPARATTINÆ.

Sparatta pygidiata Kirby.

1896. *Sparatta pygidiata* Kirby, Jour. Linn. Soc. Lond., Zool., XXV, p. 527, Pl. XX, figs. 10 and 10a. [Rio [de Janeiro, Brazil].]
Kaiteur, British Guiana, VIII, 12, 1911, (F. E. Lutz; taken sifting), 3♀, [A. M. N. H. and Hebard Cln.].

We refer these specimens to *pygidiata* with doubt. We feel that the genus *Sparatta* will be found to include a great number of yet undescribed species. The synonymy and association of species under *Sparatta*, *Parasparatta* and *Prosparatta*, given by Burr in the Genera Insectorum, shows a number of serious errors. The specimens before us do not agree with Brazilian material in the Academy collection of *S. clarkii* and *S. semirufa*. Males of the present insect may show it to be not *pygidiata*, but an undescribed species.

The females have head and pronotum dark, moderately shining; the tegmina and wings shining black, with a metallic, purplish sheen. The pygidium is declivent proximad, the ventral portion produced, quadrate, with distal margin truncate, but showing three small, triangular productions. The forceps have a decided lamellate production of the internal margin which ceases abruptly at the base of the strongly incurved apices, this margin armed with a blunt median tooth and with minute denticulations in proximal half, these more numerous proximad. The caudal tibiae are armed disto-ventrad with two minute, but stout, spines. The caudal metatarsus is shorter than the third tarsal joint, and has the ventral surface fringed internally with a row of lamellate plates (agglutinated hairs) and externally with a row of minute, but stout, spines. Length of body, 8.2 to 8.5; of forceps 2.2 to 2.3 mm.

FORFICULIDÆ.

ANECHURINÆ.

Allodahlia macropyga (Westwood).

1839. *Forficula macropyga* Westwood, Royle's Illustr. Himalaya, Intr., p. 53, Pl. IX, fig. 12. [[Himalaya Mountains.]]

Chandkhira, Sylhet, Assam. 1 adult (forceps missing), [Hebard Cln.].

This specimen shows a striking color variation, with exposed surfaces of wings pale buffy. This condition has also been found in *A. scabriuscula*.

FORFICULINÆ.

Doru luteipenne (Serville).

1839. *Forficula luteipennis* Serville, Hist. Nat. Ins., Orth., p. 46. [♀, Brazil.]

Rio Caiary-Uaupes, Amazonas, Brazil, 1906, (H. Schmidt), 1 ♂. [A. M. N. H.].

Chanchamayo, Peru, 1 ♀, [A. N. S. P.].

Doru lineare (Eschscholtz).

1822. *Forficula linearis* Eschscholtz, Entomogr., p. 81. [Santa Catharina, Brazil.]

Chanchamayo, Peru, 1 ♀, [A. N. S. P.].

Forficula auricularia Linnæus.

1758. [*Forficula*] *auricularia* Linnæus, *Syst. Nat.*, Ed. X, I, p. 423. [Europe.]

Numandorp, South Holland, Netherlands, VII, 16, 1908, (M. Hebard; colony under board), 3 ♂, 1 ♀, 5 juv., [Hebard Cln.].

La Guerche, Cher. France, VIII, 17, 1906, (M. Hebard; under leaves and moss in forest), 1 juv. [Hebard Cln.].

Gerardmer, Vosges, France, VIII, 17, 1906, (M. Hebard), 1 ♀, [Hebard Cln.].

ANCISTROGASTRINÆ.

LITOCOSMIA²² new genus.

This genus agrees with *Osteulcus* alone, of the genera of the present subfamily, in the male penultimate ventral abdominal segment lacking projecting processes, but differs from that genus in the form of this segment, the tegmina which are not keeled beyond the shoulders and in having the seventh dorsal abdominal segment alone specialized laterad, not considering the stink glands.²³ The abdomen, with greatest width mesad, gives a superficial resemblance to *Mixocosmia*. The evenly and not strongly arcuate forceps suggest the type found in some species of *Paracosmia*, but are more simple.

GENOTYPE.—*Litocosmia roraimæ* new species.

Generic Characters.—Head feebly depressed meso-caudad. First antennal joint equal to combined length of second, third and fourth joints; fourth joint distinctly longer than third. Pronotum subquadrate; cephalic margin transverse, with lateral angles rather sharply rectangulate, caudal margin convex. Tegmina keeled only at shoulders. Abdomen gradually widening to seventh dorsal segment, thence gradually narrowing; stink glands of third segment well developed, of fourth segment strongly developed, tubular; seventh segment with a dorso-lateral oblique, rounded ridge on each side, ascending cephalad; other segments simple. Pygidium minute, simple. Forceps not complex in structure. Penultimate ventral abdominal segment rectangular, disto-lateral angles broadly rounded, distal margin transverse. Limbs elongate and slender; caudal metatarsus slightly longer than third tarsal joint, its ventral surface and that of second tarsal joint, hairy.

We believe the correct linear position of this genus to be after *Sarakas* and before *Mixocosmia*, then *Paracosmia*.

Litocosmia roraimæ new species. Pl. XVI, figs. 10, 11.

TYPE: ♂; Ireng River to Roraima, Brazil. August 18, 1911. (Crampton) [American Museum of Natural History.]

Size medium, form elongate and slender, with greatest abdominal

²² From *λίτή* = simple.

²³ We are not as certain as we would like to be that the species, or at least the genotype, of Burr's genus *Sarakas*, will not also be found to have a simple male penultimate ventral abdominal segment. This segment is not described in the original descriptions. The genus is assigned to the opposite category in Burr's key in the *Genera Insectorum*, but we have already found this same key to be elsewhere misleading. From the description of the genotype, *Sarakas devians* (Dohrn), it appears that *Litocosmia* is at least separable by the dilated abdomen, with lateral portions of sixth and eighth dorsal segments unspecialized, and the much more simple type of forceps.

width mesad. Head²⁴ with paired impressions dorso-mesad of antennal sockets weakly indicated; eyes longer than cheeks. Pronotum narrower than head, with a weak medio-longitudinal sulcus; prozona moderately convex, lateral portions of metazona strongly ascendent to lateral margins, caudal portion feebly convex; lateral margins parallel. Tegmina and wings fully developed. Dorsal surface of abdomen convex; ultimate segment with sides straight and very feebly convergent caudad, surface weakly convex, except meso-distad where it is very feebly concave and distad on each side above the base of the forceps is found a more convex area, at each of which areas the distal margin is weakly convex. Pygidium declivent, longer than broad, rectangulato-oval. Forceps elongate and slender; shaft evenly and not strongly curved, moderately flattened cylindrical, stout proximad with a heavy truncate tooth, thence narrow in proximal third to a sharp medio-internal tooth, this portion with a row of minute, well spaced projections, thence the shaft is unarmed and of equal width to the slight internal swelling near the apex, from which point it tapers rapidly and curves more decidedly to the acute apex.²⁵

Length of body 10.2, of pronotum 1.6, of tegmen 3.6, of exposed portion of wing 1.8, of forceps 4.4; width of pronotum 1.6, greatest width of abdomen 2.7, of ultimate dorsal abdominal segment 2.1 mm.

Coloration of head, prozona and dorsal surface of abdomen tawny. Metazona, tegmina, exposed portion of wings, limbs and underparts ochraceous tawny. Forceps dull chestnut.

The type of this interesting species is unique.

Osteuleus kervillei (Burr).

1905. *Ancistrogaster kervillei* Burr, Ann. Mag. Nat. Hist., (7), XVI, p. 490.
[Region of Merida, Venezuela.]

Merida, Venezuela, 1 ♂, [Hebard Cln.].

This topotype agrees in every way with Burr's original description, except in having the tegmina not carinate and in being somewhat larger than the maximum in the type series. There is no room for doubt that the present insect represents this species. In consequence, the characterization of the tegmina as keeled and Burr's figure,²⁶ showing this condition strikingly developed, are either incorrect

²⁴ The features given in the generic diagnosis are not repeated in this description.

²⁵ The form of the distal portion resembles a weakly curved claw. This general type is probably characteristic of all the species properly referable to the *Ancistrogasterinae*.

²⁶ *Genera Insectorum*, Fasc. 122, *Dermaptera*, Pl. VII, fig. 18, (1911).

or great variation occurs in the species in this usually constant feature. The present specimen has the tegminal shoulders rather sharply rounded, but a lateral keel is subobsolete and the tegmina should best be termed not keeled.

As noted above, the genus agrees with *Litocosmia*, alone of the genera of the Ancistrogastriinæ, in having a simple penultimate ventral abdominal segment in the male, but in the specialization of the dorsal abdominal segments shows much closer affinity to the *Ancistrogaster* type, being nearest *Praos* in this respect, before which genus, in linear arrangement, we would place *Osteulcus*. The forceps are distinctive and remarkable.

OPISTHOCOSMIINÆ.

Kleter aterrimus (Bormans).

1883. *A[ncistrogaster] aterrimus* Bormans, Ann. Soc. Ent. Belg., XXVII, p. 83, Pl. III, fig. 18. [Ecuador.]

Rio Charape, Peru, IX, 14, 1911, (C. H. T. Townsend), 1 ♂, [U. S. N. M.].

This specimen is very slightly larger than the type, with the description of which it agrees throughout. The figure is exceedingly crude.

Except for the much broader last dorsal abdominal segment, a general superficial resemblance to the species of *Skalistes* is shown.

Eparchus burri (Bormans).

1903. *Opisthocosmia burri* Bormans, in Burr, Ann. Mag. Nat. Hist., (7), XI, p. 267. [Lompa Battau, South Celebes, at 3000 meters.]

Bua-Kraeng, South Celebes, 5000 meters, II, 1896, (for H. Fruhstorfer), 1 ♂, [Hebard Cln.].

The original description is very brief; valuable comparisons are later made by Burr.²⁷

EXPLANATION OF PLATE XVI.

Fig. 1.—*Forcipula despinosa* new species. ♂, type. Northern India. Dorsal outline. (X 2.16).

Fig. 2.—*Pseudisolabis elegans* new species. ♂, type. Kulu, Kangra, India. Dorsal outline. (X 4).

Fig. 3.—*Pseudisolabis elegans* new species. ♀, allotype. Kulu, Kangra, India. Dorsal outline of ultimate dorsal abdominal segment and forceps. (X 10).

Fig. 4.—*Labia barberi* new species. ♂, type. Cacao, Trece Aguas, Alta Vera Paz, Guatemala. Dorsal outline. (X 14).

Fig. 5.—*Labia nodifer* new species. ♂, type. Cacao, Trece Aguas, Alta Vera Paz, Guatemala. Dorsal outline. (X 13).

Fig. 6.—*Labia arcuata* Scudder. ♂, type. Vassouras, Minas Geraes, Brazil. Dorsal view of distal dorsal abdominal segments and forceps. (X 7.7).

²⁷ *Fauna British India, Dermapt.*, p. 194, (1910).

- Fig. 7.—*Labia rotundata* Scudder. ♀, *type*. Mexico. Dorsal outline of ultimate dorsal abdominal segment, pygidium and forceps.²³ (X 8).
- Fig. 8.—*Prolabia ascensionis* new species. ♂, *type*. Ascension Island, South Atlantic. Dorsal outline. (X 8).
- Fig. 9.—*Prolabia ascensionis* new species. ♀, *allotype*. Ascension Island, South Atlantic. Dorsal outline of ultimate dorsal abdominal segment, pygidium and forceps. (X 7.4).
- Fig. 10.—*Lilocosmia roraimæ* new species. ♂, *type*. Ireng River to Roraima, Brazil. Dorsal outline. (X 4.5).
- Fig. 11.—*Lilocosmia roraimæ* new species. ♂, *type*. Ireng River to Roraima, Brazil. Ventral outline of:—A. Penultimate Ventral Abdominal Segment. B. Portions of Ultimate Dorsal Abdominal Segment folded over Subgenital Plate. C. One of the halves of the cleft Subgenital Plate. Mesad is the ventral surface of the pygidium, between the bases of the forceps.

²³ This figure is given to show the widely separated type of forceps, found also in both *nodifer* and *arcuata*.

